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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,323	05/09/2005	Jin Soo Seo	2167.008US1	4880

21186 7590 04/16/2008
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EXAMINER

BITAR, NANCY

ART UNIT	PAPER NUMBER
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2624

MAIL DATE	DELIVERY MODE
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04/16/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/534,323	Applicant(s) SEO ET AL.	
	Examiner NANCY BITAR	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/22/07, 12/18/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION**Response to arguments**

1. Applicant's arguments, in the amendment filed 01/03/2008 with respect to the rejections of claims 1-8 under 35 U.S.C.103 (a) have been fully considered but are moot in view of the new ground(s) of rejection necessitated by the amendments. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Rhoads et al (US 6,408,082) and Chen et al (Symmetric phase-only matched filtering of Fourier mellin transforms for image registration and recognition) and Pereira et al (Template based recovery of Fourier based watermarks using log-polar and log-log maps).

Examiner Notes

2. Examiner cites particular columns and line numbers in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested that, in preparing responses, the applicant fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhoads et al (US 6,408,082), in view of Chen et al (Symmetric phase-only matched filtering of Fourier mellin transforms for image registration and recognition) and further in view of Pereira et al (Template based recovery of Fourier based watermarks using log-polar and log-log maps).

As to claim 1, Rhoads et al teaches a method of extracting a fingerprint from a multimedia an audio signal, the method comprising the steps of: extracting a set of robust perceptual features from the audio signal (obtain data sets, 100 figure 1) ; subjecting the extracted set of features to a Fourier-Mellin transform to compensate for speed changes in the audio signal (correlate data set with watermark, 110, and 2D Fourier mellin transform, 204, , figure 2, note that the Fourier mellin transform in watermark detection uses empirical data such as audio and video, column 3, lines 29-42); and converting the transformed set of features into a sequence constituting the fingerprint (the embedding component transform a watermark pattern from one domain to the output domain of the target media content (e.g., spatial domain for images) and combine the transformed pattern with the original media content to create a watermarked version of the target media, column 3, lines 19-27). While Rhoads meets a number of the limitations of the claimed invention, as pointed out more fully above, Rhoads fails to specifically teach the feature sequence constitute the fingerprint. Specifically, Chen et al fingerprint recognition (section C, page 1165) where the FMI-SPOMF is used to

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recognize the fingerprint by matching fingerprint minutie with respect to the Fourier mellin transformation. It would have been obvious to one of ordinary skill in the art to transfer the sequence constituting the fingerprint in Rhoads et al transformed image data set in order to have a robust, general, and efficient image matching technique with significantly improved discriminating power and estimation accuracy. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

As to claim 2, Pareira et al. teaches a method as claimed in claim 1, wherein said converting step includes converting the magnitudes of the Fourier-Mellin transform (see section 4.4, magnitude of the FFT, pages 3-5). Because transferring the magnitude of the Fourier mellin transform renders the method robust against rotation scaling or aspect ratio changes. It would have been obvious to one of ordinary skill in the art to include the magnitude algorithm in Fourier transform of Rhoads et al in order to overcome the sampling problem and maximizing the number of points matched between the known template and the image.

As to claim 3, Rhoads et al teaches the method as claimed in claim 1, wherein said converting step includes converting a derivative of the phase of the Fourier-Mellin transform. (Differential scale, column 6, lines 49-62)

As to claim 4, Pareira et al. teaches a method as claimed in claim 1, wherein Fourier-Mellin transform includes a one-dimensional log mapping process being applied to the set of perceptual features (see section 2.1 and 4.4).

As to claim 5, Pereira et al. teaches method as claimed in claim 1, wherein the audio signal forms part of an image or video signal and said Fourier-Mellin transform

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includes a two-dimensional log-polar mapping process being applied to the set of perceptual features (see section 4.1, log-polar mapping , page 3).

As to claim 6, Pareira et al. teaches method as claimed in claim 1, wherein the audio signal forms part of an image or video signal and said Fourier-Mellin transform includes a two-dimensional log-log mapping process being applied to the set of perceptual features (section 4.2, log-log mapping, page 3, see also section 4.4).

As to claim 7, Rhoads et al teaches the method as claimed in claim 1, wherein said extracting includes normalization of the set of perceptual features (de-convolution and filtering, see figure 4)

Claims 8- 15 differ from claims 1-7 only in that claims 1-7 are method claim whereas, claims 8-15 are an apparatus claim. Thus, claims 8-15 are analyzed as previously discussed with respect to claims 1-7 above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NANCY BITAR whose telephone number is (571)270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)? If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew W. Johns/
Primary Examiner, Art Unit 2624

Nancy Bitar

4/10/2008